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EXAMINER

MOORE, KARLA A

ART UNIT PAPER NUMBER

1763

DATE MAILED: 02/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/082,599

Applicant(s)

CARPENTER ET AL.

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26, 28-35, 38-67, 69-75, 110 and 111 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11-13, 15-22, 52-66, 75 and 110-111 is/are allowed.
- 6) ☒ Claim(s) 1-10, 23-26, 28-34, 38, 40-51, 67 and 69-74 is/are rejected.
- 7) ☒ Claim(s) 35 and 39 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1003.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group 1, claims 1-75, in a paper filed 10/28/03 is acknowledged. Claims 76-109 have been cancelled.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,089,543 to Freerks in view of U.S. Patent No. 5,223,113 to Kaneko et al.
4. Freerks discloses a semiconductor substrate processing chamber and substrate transfer chamber interfacial structure, comprising: a body (28) sized and shaped to engage between a semiconductor substrate processing chamber (14) and a substrate transfer chamber (12); the body comprising a substrate passageway (56) extending there through, the passageway comprising walls (31) at least a portion of which are substantially metallic/a metallic insert (column 1, rows 39-41); and a body (29) comprising material peripheral of the walls, the peripheral body comprising mounting openings (Figure 6, not numbered) extending at least partially therein.
5. However, Freerks fails to teach the peripheral body comprising a material that is substantially non-metallic and thermally insulative. Freerks further fails to teach the body effective in spacing the processing chamber and transferring chamber from one another.
6. Kaneko et al. teach the use of ceramic material at a peripheral portion of a contacting interface between two chambers for purpose of providing excellent heat insulation, which enables power

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consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier (column 2, rows 45-48; column 5, rows 44-46; column 7, rows 38-44; and column 8, rows 6-14). Kaneko teaches the use of a clearance (Figure 5, C1) the ceramic, insulating material for the purpose of preventing contact between two metallic surfaces, thus allowing heat to be transferred only through convection (column 7, rows 45-54).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided non-metallic, thermally insulating material peripheral to a metallic passageway in Freerks in order to provide excellent heat insulation, enabling power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier as taught by Kaneko et al. It would have been further obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a clearance created by ceramic, insulating material in Freerks in order to prevent any heat transfer other than by convection as taught by Kaneko et al.

8. With respect to claim 2, all of the passageway walls are substantially metallic (see Figure 6).

9. With respect to claim 3, at column 7, rows 38-40, as noted above, Freerks teaches the invention substantially as claimed.

10. However, Freerks fails to teach the body comprising a greater volume of substantially non-metallic material and thermally insulative material than of substantially metallic material.

11. Kaneko et al. teach that the heat transmitted through the non-metallic material is smaller than the heat transmitted through metal.

12. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a greater volume of non-metallic material than metallic material to take advantage of this property as taught in Kaneko et al.

13. With respect to claim 6, Kaneko et al. teach the insulating material as ceramic (column 7, rows 36-38).

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14. With respect to claim 23, with the combination of Freerks and Kaneko et al., the body further comprises a volume in at least one cross sectional region transverse the passageway which extends to diametrically opposing portions of the perimeter, at least a majority of said cross sectional region constituting a substantially non-metallic and thermally insulative material (see Figure 6).

15. With respect to claims and 24, the passageway comprises walls, at least a portion of the walls (31) being substantially metallic.

16. With respect to claims 25 and 26, the prior art does not disclose a specific value for the depth of the cross-sectional region. However, it would have been obvious to one of ordinary skill in the art to optimize the value based on a number of apparatus variables, such as the material used for the structure, the heating temperature in the processing chamber and the size of the processing and transfer chambers. One of ordinary skill in the art would have worked to find a value that was large enough that proper isolation was ensured, but not so large that the size of the apparatus was unduly increased, leading to a larger apparatus than needed and thus increased costs.

17. With respect to claim 28, at least one face is configured for contacting a processing chamber (14) and another face is configured for contacting a transfer chamber (12).

18. With respect to claim 29, the inner portion (31) of the body/insert of Freerks is a metallic insert.

19. With respect to claim 30, as noted above, Kaneko et al. teach that the heat transmitted through the non-metallic material is smaller than the heat transmitted through metal.

20. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a greater volume of non-metallic material than metallic material to take advantage of this property as taught in Kaneko et al.

21. Additionally, with respect to claims 23-26 and 28-30, although the combination of Freerks Kaneko et al. fail to teach the insulative material comprising a greater volume of thermally insulative material than metallic material, Kaneko et al. clearly teaches the advantages of providing the insulative material. One of ordinary skill in the art would recognize that by increasing the amount of thermally insulative material versus the amount metallic material these advantages would be increased. The courts have ruled that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the

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optimum or workable ranges by routine experimentation. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

22. With respect to claim 32, the interfacial structure comprises bolt holes (not numbered) extending through the mass and spaced from the passageway (see Figure 6).

23. With respect to claims 67 and 70-71, Freerks and Kaneko disclose the interfacial structure as claimed as described above.

24. Claims **4** and **31** are rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 6,263,829 to Schneider et al.

25. Freerks and Kaneko et al. disclose the invention substantially as claimed and as described above.

26. However, Freerks and Kaneko fail to teach the substantially non-metallic, thermally insulative material as polymeric.

27. Schneider et al. teach the use of polymeric material as a construction material for a processing chamber where high temperatures and a harsh chemical environment are present (column 6, rows 40-42).

28. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a polymeric material as the non-metallic, thermally insulative material Freerks and Kaneko in order to take advantage of the materials suitability for use at high temperatures and in harsh chemical environments as taught by Schneider et al.

29. Claim **5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of Japanese Patent No. 08-034678 A to Sonoda et al.

30. Freerks and Kaneko et al. disclose the invention substantially as claimed and as described above.

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31. However, Freerks and Kaneko fail to teach the substantially non-metallic, thermally insulative material as a gel.

32. Sonoda et al. teach the use of a gel material for the purpose of taking advantage of its heat insulating properties and good mechanical strength (abstract).

33. It would have been obvious to one ordinary skill in the art at the time the Applicant's invention was made to have provided a gel material as the non-metallic, thermally insulative material Freerks and Kaneko in order to take advantage of the materials heat insulating properties and good mechanical strength as taught by Sonoda et al.

34. Claims **7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of Japanese Patent Publication No. 2001-261375 to Sato et al.

35. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

36. However, Freerks and Kaneko fail to teach the substantially non-metallic, thermally insulative material as porous or glass.

37. Sato et al. teach the use of a material comprising glass and which is porous for the purpose of obtaining a heat insulating material with excellent chemical resistance and excellent handleability suitable for use in semiconductor production (Japanese and Derwent abstracts).

38. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a material comprising glass and which is porous Freerks and Kaneko in order to obtain a heat insulating material suitable for use in semiconductor production as taught by Sato et al.

39. Claim **9** is rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 5,626,936 to Alderman.

40. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

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41. However, Freerks and Kaneko fail to teach the substantially non-metallic, thermally insulative material as at least two of solid, liquid and gas.

42. Alderman teaches the use of a construction material containing both liquid and solid phases for the purpose of avoiding exposure of an interior space from much higher or much lower temperatures of an exterior surface, thereby reducing the power requirements to maintain the desired temperature within the interior space (abstract).

43. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a two-phase, solid and liquid material as the non-metallic, thermally insulative material in Freerks and Kaneko in order to isolate two regions with differing temperatures, thus, reducing the power requirement to maintain a desired temperature in either of the regions as taught by Alderman.

44. Claims **10** and **73-74** are rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 3,618,919 to Beck.

45. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

46. However, Freerks and Kaneko fail to teach at least two wall openings positioned to establish a gas curtain across the passageway and at least one gas feed conduit in fluid communication with the wall openings.

47. Beck teaches the use of a gas curtain for the purpose of controllably isolating respective gas atmospheres of two zones (abstract). The gas curtain comprises: multiple gas feed conduits (Figure 3, 54 and 58) in fluid communication with wall openings (46).

48. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas curtain in the prior art in order to controllably isolated respective gas atmospheres of two zones as taught by Beck.

49. With respect to the limitations drawn to the exact number of wall openings, the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

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50. Claim **33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks and Kaneko et al. as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 6,045,620 to Tepman et al.

51. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

52. Freerks and Kaneko fail to teach the interfacial structure comprising a plurality of openings for receiving load bearing plugs.

53. Tepman et al. teach the use of a plurality of openings and supplying a plurality of screws to those openings in order to attach an interfacial structure to a transfer chamber (column 5, rows 35-36).

54. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of openings and to have supplied a plurality of screws to those openings in Freerks and Kaneko in order to attach an interfacial structure to a transfer chamber as taught by Tepman et al.

55. Claims **34, 38 and 40** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,089,543 to Freerks, in view of U.S. Patent No. 5,223,113 to Kaneko et al., U.S. Patent No. 6,045,620 to Tepman et al. and U.S. Patent No. 4,289,061 to Emmett.

56. Freerks discloses a semiconductor substrate processing chamber and substrate transfer chamber interfacial structure, comprising: a substantially rectangular body (28) sized and shaped to engage between a semiconductor substrate processing chamber (14) and a substrate transfer chamber (12); the body comprising a substrate passageway (56) extending there through.

57. However, Freerks fails to teach the peripheral body comprising a material that is substantially non-metallic and thermally insulative. Freerks further fails to teach the body effective in spacing the processing chamber and transferring chamber from one another.

58. Kaneko et al. teach the use of ceramic material at a peripheral portion of a contacting interface between two chambers for purpose of providing excellent heat insulation, which enables power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of

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the process chamber to be made easier (column 2, rows 45-48; column 5, rows 44-46; column 7, rows 38-44; and column 8, rows 6-14). Kaneko teaches the use of a clearance (Figure 5, C1) the ceramic, insulating material for the purpose of preventing contact between two metallic surfaces, thus allowing heat to be transferred only through convection (column 7, rows 45-54).

59. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided non-metallic, thermally insulating material peripheral to a metallic passageway in Freerks in order to provide excellent heat insulation, enabling power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier as taught by Kaneko et al. It would have been further obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a clearance created by ceramic, insulating material in Freerks in order to prevent any heat transfer other than by convection as taught by Kaneko et al.

60. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

61. However, Freerks and Kaneko fail to teach the interfacial structure comprising a plurality of openings for receiving mounting structures/load bearing plugs.

62. Tepman et al. teach the use of a plurality of openings and supplying a plurality of screws to those openings in order to attach an interfacial structure to a transfer chamber (column 5, rows 35-36).

63. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of openings and to have supplied a plurality of screws to those openings in Freerks and Kaneko in order to mount an interfacial structure to a transfer chamber as taught by Tepman et al.

64. Freerks, Kaneko et al. and Tepman disclose the invention substantially as claimed and as described above.

65. However, Freerks and Kaneko and Tepman fail to teach the body comprising load bearing plugs within at least some of the openings in the thermally insulative material, the load bearing plugs having

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greater compression strength than the thermally insulative material and at least some of the load bearing plugs comprising holes extending therethrough which are sized to received mounting bolts.

66. Emmett teaches the use load bearing plugs (Figure 1, 2) including a hollow portion sized to receive mounting bolts (20) where the purpose of the hollow portion is to absorb a substantial amount of the total load applied by the plug (column 2, rows 41-49).

67. It would have been obvious to one of ordinary skill in art at the time the Applicant's invention was made to have provided at least some of load bearing plugs with a hollow portion in Freerks, Kaneko et al. and Tepman in order to absorb a substantial amount of the total load applied by the plug as taught by Emmett.

68. With respect to claim 38, the body is substantially rectangular having outermost corners, at least four of said openings and load bearing plugs being respectively proximate the outermost corners.

69. With respect to claim 40, the body of Freerks comprises a substantially metallic insert (31) received within the passageway, the insert defining an insert substrate passageway therethrough.

70. Claims **41-46** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,089,543 to Freerks in view of U.S. Patent No. 5,223,113 to Kaneko et al. and U.S. Patent No. 3,618,919 to Beck.

71. Freerks discloses a semiconductor substrate processing chamber and substrate transfer chamber interfacial structure, comprising: a body (28) sized and shaped to engage between a semiconductor substrate processing chamber (14) and a substrate transfer chamber (12); the body comprising a substrate passageway (56) extending there through, the passageway comprising walls (31) at least a portion of which are substantially metallic/a metallic insert (column 1, rows 39-41); and a body (29) comprising material peripheral of the walls, the peripheral body comprising mounting openings (Figure 6, not numbered) extending at least partially therein.

72. However, Freerks fails to teach the peripheral body comprising a material that is substantially non-metallic and thermally insulative. Freerks further fails to teach the body effective in spacing the processing chamber and transferring chamber from one another.

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73. Kaneko et al. teach the use of ceramic material at a peripheral portion of a contacting interface between two chambers for purpose of providing excellent heat insulation, which enables power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier (column 2, rows 45-48; column 5, rows 44-46; column 7, rows 38-44; and column 8, rows 6-14). Kaneko teaches the use of a clearance (Figure 5, C1) the ceramic, insulating material for the purpose of preventing contact between two metallic surfaces, thus allowing heat to be transferred only through convection (column 7, rows 45-54).

74. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided non-metallic, thermally insulating material peripheral to a metallic passageway in Freerks in order to provide excellent heat insulation, enabling power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier as taught by Kaneko et al. It would have been further obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a clearance created by ceramic, insulating material in Freerks in order to prevent any heat transfer other than by convection as taught by Kaneko et al.

75. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

76. However, Freerks and Kaneko fail to teach at least two wall openings positioned to establish a gas curtain across the passageway and at least one gas feed conduit in fluid communication with the wall openings.

77. Beck teaches the use of a gas curtain for the purpose of controllably isolating respective gas atmospheres of two zones (abstract). The gas curtain comprises: multiple gas feed conduits (Figure 3, 54 and 58) in fluid communication with wall openings (46).

78. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas curtain in the prior art in order to controllably isolated respective gas atmospheres of two zones as taught by Beck.

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79. With respect to the limitations drawn to the exact number of wall openings, the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

80. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,089,543 to Freerks in view of U.S. Patent No. 5,223,113 to Kaneko et al. and U.S. Patent No. 3,618,919 to Beck.

81. Freerks discloses a semiconductor substrate processing chamber and substrate transfer chamber interfacial structure, comprising: a body (28) sized and shaped to engage between a semiconductor substrate processing chamber (14) and a substrate transfer chamber (12); the body comprising a substrate passageway (56) extending there through, the passageway comprising walls (31) at least a portion of which are substantially metallic/a metallic insert (column 1, rows 39-41); and a body (29) comprising material peripheral of the walls, the peripheral body comprising mounting openings (Figure 6, not numbered) extending at least partially therein.

82. However, Freerks fails to teach the peripheral body comprising a material that is substantially non-metallic and thermally insulative. Freerks further fails to teach the body effective in spacing the processing chamber and transferring chamber from one another.

83. Kaneko et al. teach the use of ceramic material at a peripheral portion of a contacting interface between two chambers for purpose of providing excellent heat insulation, which enables power consumption of the heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier (column 2, rows 45-48; column 5, rows 44-46; column 7, rows 38-44; and column 8, rows 6-14). Kaneko teaches the use of a clearance (Figure 5, C1) the ceramic, insulating material for the purpose of preventing contact between two metallic surfaces, thus allowing heat to be transferred only through convection (column 7, rows 45-54).

84. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided non-metallic, thermally insulating material peripheral to a metallic passageway in Freerks in order to provide excellent heat insulation, enabling power consumption of the

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heater (in a processing chamber) to be made smaller and the temperature control of the process chamber to be made easier as taught by Kaneko et al. It would have been further obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a clearance created by ceramic, insulating material in Freerks in order to prevent any heat transfer other than by convection as taught by Kaneko et al.

85. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

86. However, Freerks and Kaneko fail to teach at least two wall openings positioned to establish a gas curtain across the passageway and at least one gas feed conduit in fluid communication with the wall openings.

87. Beck teaches the use of a gas curtain for the purpose of controllably isolating respective gas atmospheres of two zones (abstract). The gas curtain comprises: multiple gas feed conduits (Figure 3, 54 and 58) in fluid communication with wall openings (46).

88. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a gas curtain in the prior art in order to controllably isolated respective gas atmospheres of two zones as taught by Beck.

89. With respect to the limitations drawn to the exact number of wall openings, the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

90. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freerks, Kaneko and Beck as applied to claim 47 above, and further in view of U.S. Patent No. 6,263,829 to Schneider et al.

91. Freerks, Kaneko and Beck disclose the invention substantially as claimed and as described above.

92. However, Freerks, Kaneko and Beck fail to teach the substantially non-metallic, thermally insulative material as polymeric.

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93. Schneider et al. teach the use of polymeric material as a construction material for a processing chamber where high temperatures and a harsh chemical environment are present (column 6, rows 40-42).

94. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a polymeric material as the non-metallic, thermally insulative material Freerks, Kaneko and Beck in order to take advantage of the materials suitability for use at high temperatures and in harsh chemical environments as taught by Schneider et al.

95. Claims **49 and 50** are rejected under 35 U.S.C. 103(a) as being unpatentable Freerks, Kaneko and Beck as applied to claim 47 above, and further in view of U.S. Patent No. 6,045,620 to Tepman et al.

96. However, Freerks, Kaneko, Beck fail to teach a sealant channel comprising a sealant channel/o-ring groove peripherally surrounding the passageway.

97. Tepman et al. teach the use of a sealant channel/o-ring groove (Figures 5 and 6, 82; column 6, rows 2-5) on a substantially metallic insert (31) received within a passageway, the insert defining a substrate passageway there through, where the purpose of the sealant channel/o-ring groove is forming a seal between a process chamber and the metallic insert.

98. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a sealant channel/o-ring groove in the prior art in order to form a seal between a process chamber and a metallic insert.

99. Claim **51** is rejected under 35 U.S.C. 103(a) as being unpatentable Freerks, Kaneko and Beck as applied to claim 47 above, and further in view of U.S. Patent No. 6,045,620 to Tepman et al.

100. Freerks, Kaneko and Beck disclose the invention substantially as claimed and as described above

101. Tepman et al. teach the use of a plurality of openings and supplying a plurality of screws to those openings in order to attach an interfacial structure to a transfer chamber (column 5, rows 35-36).

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102. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of openings and to have supplied a plurality of screws to those openings in Freerks and Kaneko in order to attach an interfacial structure to a transfer chamber as taught by Tepman et al.

103. With respect to the recitation that each of the load bearing plugs has a greater compression strength than the thermally insulative material, it would have been obvious to one of ordinary skill in the art to provide the plugs comprising a material which would enable the load bearing plugs to absorb a majority of the load, rather than body so as not to impose undue stress on the body. The courts have ruled that the selection of a known material based on its suitability for its intended use is prima facie obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, U.S. 327, 65 USPQ 297 (1954). Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jigsaw puzzle. 325 U.S. at 335, 65 USPQ at 301.

104. Claim **69** is rejected under 35 U.S.C. 103(a) as being unpatentable Freerks, Kaneko as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 6,045,620 to Tepman et al.

105. Freerks and Kaneko disclose the invention substantially as claimed and as described above.

106. However, Freerks and Kaneko fail to teach a sealant channel comprising a sealant channel/o-ring groove peripherally surrounding the passageway.

107. Tepman et al. teach the use of a sealant channel/o-ring groove (Figures 5 and 6, 82; column 6, rows 2-5) on a substantially metallic insert (31) received within a passageway, the insert defining a substrate passageway there through, where the purpose of the sealant channel/o-ring groove is forming a seal between a process chamber and the metallic insert.

108. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a sealant channel/o-ring groove in Freerks and Kaneko art in order to form a seal between a process chamber and a metallic insert as taught by Tepman et al.

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109. Claim **72** is rejected under 35 U.S.C. 103(a) as being unpatentable Freerks, Kaneko as applied to claims **1-3, 6, 23-26, 28-30, 32, 67 and 70-71** above, and further in view of U.S. Patent No. 6,045,620 to Tepman et al.

110. Freerks and Kaneko disclose the invention substantially as claimed and as described above

111. Tepman et al. teach the use of a plurality of openings and supplying a plurality of screws to those openings in order to attach an interfacial structure to a transfer chamber (column 5, rows 35-36).

112. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of openings and to have supplied a plurality of screws to those openings in Freerks and Kaneko in order to attach an interfacial structure to a transfer chamber as taught by Tepman et al.

113. With respect to the recitation that each of the load bearing plugs has a greater compression strength than the thermally insulative material, it would have been obvious to one of ordinary skill in the art to provide the plugs comprising a material which would enable the load bearing plugs to absorb a majority of the load, rather than body so as not to impose undue stress on the body. The courts have ruled that the selection of a known material based on its suitability for its intended use is prima facie obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, U.S. 327, 65 USPQ 297 (1954). Reading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jigsaw puzzle. 325 U.S. at 335, 65 USPQ at 301.

***Allowable Subject Matter***

114. Claims **11-13, 15-22, 52-66, 75 and 110-111** are allowed.

115. The following are the examiner's statement of reasons for allowance: The prior art fails to fairly teach or suggest the body as claimed in the claims mentioned above with the mass of substantially non-metallic and thermally insulative material having first and second opposing and generally planar faces, one of the faces having a recess formed therein and the body comprising **a metal plate in physical connection with the substantially metallic insert, the metal plate being received with the face**

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**recess of the mass of substantially non-metallic and thermally insulative material** (claims 52-66, 75 and 110-111).

116. The prior art fails to fairly teach or suggest the body comprising a substantially metallic insert received within the passageway, the insert defining an insert substrate passageway therethrough, the sealant channel being received on the substantially metallic insert (claims 11-22).

117. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

118. Claims **35 and 39** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

119. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach at least some of the load bearing plugs being solid.

### ***Response to Arguments***

119. Applicant's arguments filed 10/28/03, with respect to independent claims 1, and the failure of Freerks and Kaneko to show the claim recitations, have been fully considered but they are not persuasive.

120. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

121. Applicant points out that Freerks fails to teach the use of a body comprising non-metallic insulative material or a body effective for spacing a processing chamber and a transfer chamber away from one another. Examiner recognizes these deficiencies and points out that the reference has not relied upon for these teachings. Kaneko is relied upon in the first office action and the present office

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action for teaching the use of "material peripheral of 'passageway' walls that is substantially non-metallic and thermally insulative, the substantially non-metallic material comprising mounting openings extending at least partially therein". Kaneko is further relied upon in the present office action as teaching a body effective to space a processing chamber and transferring chamber away from one another. Although Kaneko does not teach a body sized and shaped to engage between a processing chamber and a transfer chamber, the body comprising substantially metallic walls surrounded by substantially non-metallic and thermally insulative material, Kaneko does teach the concept of providing a substantially non-metallic and thermally insulative material (144) peripherally of a metallic material (material surrounding passageway, 17) for purposes of insulation. This concept has been applied/combined with the disclosure of Freerks in the rejections of claims of the present application. Freerks discloses an insert comprising two parts, 29 and 31. Part 31 is located on the periphery of part 29. After reviewing the teachings of Kaneko, one of ordinary skill in the art would have recognized that constructing the peripheral part of Freerks of a substantially non-metallic and thermally insulative material as taught by Kaneko would provide the benefit of increased insulation. Moreover, by providing any part of the body (i.e. the peripheral part, 31) of Freerks in a position so that it effectively spaces the processing chamber and transferring chamber from one another as taught by Kaneko one of ordinary skill in the art would recognize that the insulation benefits would be even further enhanced.

122. Applicant's arguments with respect to claim 34 have been considered but are moot in view of the new ground(s) of rejection. The prior art references have been applied to cover Applicant's amendments to the claim.

### ***Conclusion***

123. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date

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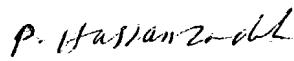
of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km  
January 26, 2004

  
Parviz Hassanzadeh  
Primary Examiner  
Art Unit 1763